CONTENTS OF VOLUME 78, 1988

No. 1—January

1-3 **Acknowledgement of Reviewers**

4-6 **Author's Guide for Manuscript Preparation**

7-26 **Seventy-Ninth Annual Report of the American Phytopathological Society**

27-31 **Presidential Address: Women in Plant Pathology: An Assessment** ..... A. K. Vidaver

32-35 **Plenary Session: An Agenda for Phytopathology** ..... R. M. Goodman

36-39 **Hatch Act Observance: Impacts of the Hatch Act on the Science of Plant Pathology** ..... J. M. Barnes

40-41 **The American Phytopathological Society Elected and Appointed Officers, Representatives, and Committees for 1987–1988**

42-52 **Awards and Honors Program—79th Annual Meeting**

OBITUARY

53 **Norma Louella Cashion, 1953–1984** ..... E. S. Luttrell

CYTOLOGY AND HISTOLOGY

75-84 **Host-Parasite Relationships in Karnal Bunt of Wheat** ..... N. L. Cashion and E. S. Luttrell

ECOLOGY AND EPIDEMIOLOGY

54-58 **Focus Expansion in Plant Disease. I: The Constant Rate of Focus Expansion** ..... F. van den Bosch, J. C. Zadoks, and J. A. J. Metz

59-64 **Focus Expansion in Plant Disease. II: Realistic Parameter-Sparse Models** ..... F. van den Bosch, J. C. Zadoks, and J. A. J. Metz

84-88 **The Role of Chitinase of *Serratia marcescens* in Biocontrol of *Sclerotium rolfsii*** ..... A. Ordentlich, Y. Elad, and I. Chet

95-100 **The Relationship of *Xanthomonas campestris* pv. *translucens* to Frost and the Effect of Frost on Black Chaff Development in Wheat** ..... H. Azad and N. W. Schaad

110-114 **The Effect of Temperature on Sporulation and Viability of Isolates of *Peronospora tabacina* Collected in the United States** ..... M. A. Moss and C. E. Main

121-126 **Semiselective Agar Medium for Isolation of *Clavibacter michiganense* from Tomato Seed** .. M. Fatmi and N. W. Schaad

ETIOLOGY

100-103 **Effects of Temperature and Relative Humidity on Germination, Growth, and Sporulation of *Zygophiala jamaicensis*** ..... C. M. Ocamb-Basu and T. B. Sutton

POSTHARVEST PATHOLOGY AND MYCOTOXINS

68-74 **Fungal Interference with *Aspergillus flavus* Infection and Aflatoxin Contamination of Maize Grown in a Controlled Environment** ..... D. T. Wicklow, B. W. Horn, O. L. Shotwell, C. W. Hesseltine, and R. W. Caldwell

RESISTANCE

65-68 **Diallel Analysis of Resistance of Eight Maize Inbred Lines to *Sphacelotheca reiliana*** ..... I. V. Whythe and H. O. Gevers

SPECIAL TOPICS

88-94 **Effects of Open-Air Fumigation with Sulphur Dioxide on the Occurrence of Fungal Pathogens in Winter Cereals** ..... A. R. McLeod

TECHNIQUES

107-109 **Five-Year Preservation of *Fusarium* Species on Silica Gel and Soil** ..... C. E. Windels, P. M. Burnes, and T. Kommedahl

115-117 **Assays for Determining Resistance and Susceptibility of Onion Cultivars to the Pink Root Disease** ..... W. M. Hess and D. J. Weber

118-120 **Rapid Compression Technique for Detecting Mycoplasmalike Organisms in Leaf Midrib Sieve Tubes by Fluorescence Microscopy** ..... J. L. Dale

VECTOR RELATIONS

104-107 **Quantity of Virus Required for Aphid Transmission of a Potyvirus** ..... T. P. Pirone and D. W. Thornbury

126 **Erratum**

No. 2—February

CYTOLOGY AND HISTOLOGY

144-148 **Epifluorescence Microscopy of *Sphaerotheca fuliginea* Race 2 on Susceptible and Resistant Genotypes of *Cucumis melo*** ..... Y. Cohen and H. Eyal

DISEASE CONTROL AND PEST MANAGEMENT

166-172 **Role of Fluorescent Siderophore Production in Biological Control of *Pythium ultimum* by a *Pseudomonas fluorescens* Strain** ..... J. E. Loper

DISEASE DETECTION AND LOSSES

159-166 **Effects of Three Soil Types on Potato Early Dying Disease and Associated Yield Reduction** ..... L. J. Francl, R. C. Rowe, R. M. Riedel, and L. V. Madden

172-178 **Classification of Sweet Corn Hybrid Reactions to Common Rust, Northern Leaf Blight, Stewart's Wilt, and Goss' Wilt and Associated Yield Reductions** ..... J. K. Pataky, J. M. Headrick, and Suparyono

198-204 **Reduction in Plant Development, Yield, and Grain Quality Associated with Wheat Spindle Streak Mosaic Virus** ..... B. M. Cunfer, J. W. Demski, and D. C. Bays

GENETICS

149-153 **Genetic Analysis of *Exserohilum turcicum* Lesion Expansion on Corn** ..... K. M. Sigulas, R. R. Hill, and J. E. Ayers

MOLECULAR PLANT PATHOLOGY

154-159 **Isolation, Molecular Cloning, and Detection of Strawberry Vein Banding Virus DNA** ..... D. C. Stenger, R. H. Mullin, and T. J. Morris

PHYSIOLOGY AND BIOCHEMISTRY

213-217 **Elevation and Release of Cell-Associated Pectate Lyase in *Erwinia chrysanthemi* by Lithium and Sodium Chloride** ..... J. P. Mildenhall, W. A. Lindner, B. A. Prior, and K. Tutt

ECOLOGY AND EPIDEMIOLOGY

127-130 **Influence of Soil on Inoculum Density-Disease Incidence Relationships of *Rhizoctonia solani*** ..... R. S. Kinsbursky and A. R. Weinhold

131-134 **Variation in Reaction to Anthracnose within Native *Stylosanthes capitata* Populations in Minas Gerais, Brazil** ..... J. M. Lenné

135-139 **Factors Conditioning Dominance of Race 276 of *Puccinia coronata avenae* on *Avena sterilis* Populations in Israel** ..... U. Brodny, I. Wahl, and J. Rotem

139-143 **Models for Noninfectious Bud Failure in Almond** ..... C. A. L. Fenton, D. E. Kester, and A. H. Kuniyuki

179-185 **Relative Humidity and the Survival of Epiphytic Bacteria with Buds and Leaves of Cucumber Plants** ..... C. Leben

190-194 **Biocontrol of Fusarium Wilt of Cucumber Resulting from Interactions Between *Pseudomonas putida* and Nonpathogenic Isolates of *Fusarium oxysporum*** ..... C-S. Park, T. C. Paulitz, and R. Baker

205-208 **The Recovery of *Corynebacterium sepedonicum* from Sugar Beet Seed** ..... W. M. Bugbee and N. C. Gudmestad

208-212 **Titer Variation in Infected Sorghum Differing in Resistance to Maize Dwarf Mosaic Virus Strain-B** ..... D. L. Seifers and J. Caceres

217-221 **Effects of Tillage on the Spatial Pattern of Microsclerotia of *Macrophomina phaseolina*** ..... O. M. Olanya and C. L. Campbell

227-233 **Spatial and Temporal Development of Common Rust in Susceptible and Partially Resistant Sweet Corn Hybrids** ..... J. M. Headrick and J. K. Pataky

246-252 **Spatio-Temporal Analysis of Epidemic Development of Leather Rot of Strawberry** ..... K. M. Reynolds, L. V. Madden, and M. A. Ellis

POSTHARVEST PATHOLOGY AND MYCOTOXINS

194-198 **Biocontrol of Postharvest Diseases of Apples with Antagonist Mixtures** ..... W. J. Janisiewicz

SPECIAL TOPICS

240-246 **Analysis of Epidemics Using Spatio-Temporal Autocorrelation** ..... K. M. Reynolds and L. V. Madden

TECHNIQUES

185-189 **Wax Partitioned Soil Columns to Study the Influence of Soil Moisture Potential on the Infection of Wheat by *Fusarium graminearum* Group 1** ..... C. M. Liddell and L. W. Burgess

221-226 **Analysis of the Spatial Pattern of Plant Pathogens and Diseased Plants Using Geostatistics** ..... D. O. Chellemi, K. G. Rohrbach, R. S. Yost, and R. M. Sonoda

233-236 **Alkaline-Induced Metaxylem Autofluorescence: A Diagnostic Symptom of Ratoon Stunting Disease of Sugarcane** ..... K. E. Damann, Jr.

237-239 **A Rapid Staining Method for Detection of Endophytic Fungi in Turf and Forage Grasses** ..... D. C. Saha, M. A. Jackson, and J. M. Johnson-Cicalese

No. 3—March

LETTER TO THE EDITOR

253-255 **Effect of Soil Compression on Estimates of Rhizosphere Width: Comparing Ferriss's Equation with Gilligan's** ..... N. A. Walker and S. E. Smith

ECOLOGY AND EPIDEMIOLOGY

260-265 **The Effects of Wind Speed, Temperature, and Relative Humidity on Development of Aerial Mycelium and Conidia of *Botrytis cinerea* on Grape** ..... C. S. Thomas, J. J. Marois, and J. T. English

295-299 **Effects of *Pyrenophora teres* and Weeds on Barley Yield and Yield Components** ..... J. R. Burleigh, M. Tajani, and M. Seck

314-322 **The Role of Microbial Activity in Suppression of Damping-Off Caused by *Pythium ultimum*** ..... W. Chen, H. A. J. Hoitink, A. F. Schmitthenner, and O. H. Touvinen

328-335 **Phytophthora Crown Rot of Apple Trees: Sources of *Phytophthora cactorum* and *P. cambivora* as Primary Inoculum** ..... S. N. Jeffers and H. S. Aldwinckle

358-362 **Effects of Habitat and Population Structure on Powdery Mildew Epidemics in Experiment *Phlox* Populations** ..... A. M. Jarosz and M. Levy

CYTOLOGY AND HISTOLOGY

345-349 **Histopathology of *Colletotrichum trifoli* on Alfalfa** ..... M. D. M. Porto, C. R. Grau, G. A. de Zoeten, and G. Gaard

350-357 **Cytological Comparison of Specific (*R3*)and General Resistance to Late Blight in Potato Leaf** ..... R. Gees and H. R. Hohl

GENETICS

256-260 **Vegetative Compatibility Groups in *Leucocytospora kunzei*** ..... T. J. Proffer and J. H. Hart

338-341 **Genes for Resistance to Flax Rust in the Flax Cultivars Towner and Victory A and the Genetics of Pathogenicity in Flax Rust to the *L8* Gene for Resistance** ..... D. A. Jones

342-344 **Genetic Properties of Inhibitor Genes in Flax Rust that Alter Avirulence to Virulence on Flax** ..... D. A. Jones

TECHNIQUES

322-327 **Detection of Cerato-Ulmin on Aggressive Isolates of *Ophiostoma ulmi* by Immunocytochemistry and Scanning Electron Microscopy** ..... A. M. Svircev, R. S. Jeng, and M. Hubbes

335-338 **Induction of Oospore Germination of *Phytophthora parasitica*** ..... P. J. Ann and W. H. Ko

ETIOLOGY

272-277 **Serological Relationships Among Membrane Proteins of Strains of *Xanthomonas campestris* pv. *Translucens*** ..... H. Azad and N. W. Schaad

310-313 **Indian Peanut Clump Virus Isolates: Host Range, Symptomatology, Serological Relationships, and Some Physical Properties** ..... B. L. Nolt, R. Rajeshwari, D. V. R. Reddy, N. Bharathan, and S. K. Manohar

DISEASE CONTROL AND PEST MANAGEMENT

266-270 **Effects of Cultivar, Tillage, and Cropping System on Infection of Soybean by *Diaporthe phaseolorum* var. *caulivora* and Southern Stem Canker Symptom Development** ..... C. S. Rothrock, D. V. Phillips, and T. W. Hobbs

289-295 **Effect of Solar Heating and Soil Amendments of Cruciferous Residues on *Fusarium oxysporum* f. sp. *conglutinans* and Other Organisms** ..... J. Ramirez-Villapudua and D. E. Munnecke

306-310 **Incidence of Microorganisms in Soybean Seeds Damaged by Stink Bug Feeding** ..... J. S. Russin, D. B. Orr, M. B. Layton, and D. J. Boethel

VECTOR RELATIONS

270-272 **The Enzymatic Function of Ribonuclease Determines Plant Virus Transmission by Leaf-Feeding Beetles** ..... R. C. Gergerich and H. A. Scott

PHYSIOLOGY AND BIOCHEMISTRY

285-288 **Induction of Flowering through Infection by Beet Leafhopper Transmitted Virescence Agent** ..... D. A. Golino, G. N. Oldfield, and D. J. Gumpf

300-305 **Species-Specific and Thermostable Proteins from Second-Stage Larvae of *Globodera rostochiensis* and *G. pallida*** ..... J. Bakker, A. Schots, L. Bouwman-Smits, and F. J. Gommers

SPECIAL TOPICS

278-285 **Serological Grouping of Tomato Ringspot Virus Isolates: Implications for Diagnosis and Cross-Protection** ..... M. W. Bitterlin and D. Gonsalves

SYMPOSIUM

365-366 **Interactions of Mycorrhizal Fungi with Soilborne Plant Pathogens and Other Organisms: An Introduction** ..... J. H. Graham

366-371 **Mycorrhizal Interactions with the Rhizosphere Microflora: The Mycorrhizosphere Effect** ..... R. G. Linderman

371-374 **The Role of Phosphorus Nutrition in Interactions of Vesicular-Arbuscular Mycorrhizal Fungi with Soilborne Nematodes and Fungi** ..... G. S. Smith

375-378 **Mycorrhizae—Host Specificity and Recognition** ..... A. J. Anderson

378 **Errata**

No. 4—April

CYTOLOGY AND HISTOLOGY

396-402 **Histopathology of Fusiform Rust-Inoculated Progeny from (Shortleaf × Slash) × Shortleaf Pine Crosses** ..... F. F. Jewell, Sr.

DISEASE CONTROL AND PEST MANAGEMENT

410-413 **Streptomycin Resistance of *Pseudomonas syringae* pv. *papulans* in Apple Orchards and Its Association with a Conjugative Plasmid** ..... T. J. Burr, J. L. Norelli, B. Katz, W. F. Wilcox, and S. A. Hoying

DISEASE DETECTION AND LOSSES

432-434 **Comparisons of Spatial Patterns of Oospores of *Peronosclerospora sorghi* in the Soil and of Sorghum Plants with Systemic Downy Mildew** ..... W. Schuh, M. J. Jeger, and R. A. Frederiksen

ECOLOGY AND EPIDEMIOLOGY

379-384 **Identification, Isolation Frequency, and Pathogenicity of Anastomosis Groups of Binucleate *Rhizoctonia* spp. from Strawberry Roots** ..... S. B. Martin

389-395 **Analysis of Progress of Alfalfa Leaf Spot Epidemics** ..... W. M. Thal and C. L. Campbell

403-409 **Modeling Control Strategies for Laminated Root Rot in Managed Douglas-fir Stands: Model Development** ..... W. J. Bloomberg

421-425 **Interaction of *Meloidogyne hapla* and *Fusarium oxysporum* f. sp. *medicaginis* on Alfalfa** ..... G. D. Griffin and B. D. Thyr

435-439 **Effects of Atmospheric Gasses and Light on Changes in Thickness of Oospore Walls and on Germinability of Oospores of *Pythium ultimum*** ..... L. F. Johnson

440-443 **Epidemiology of a Citrus Leaf-Spot Disease in Colima, Mexico** ..... J. J. Stapleton and J. G. Garza-Lopez

444-450 **Lack of Correlation of In Vitro Antibiosis with Antagonism of Ice Nucleation Active Bacteria on Leaf Surfaces by Non-Ice Nucleation Active Bacteria** ..... S. E. Lindow

468-472 **Incidence, Distribution, and Development of Pruning Wound Cankers Caused by *Phytophthora syringae* in Almond Orchards in California** ..... M. A. Doster and R. M. Bostock

493-498 **Effects of Temperature and Relative Humidity on Expression of Resistance to *Cercosporidium personatum* in Peanut** ..... B. B. Shew, M. K. Beute, and J. C. Wynne

GENETICS

385-389 **Nature of Cultural Variability in *Fusarium oxysporum* f. sp. *apii* Race 2** ..... R. T. Awuah and J. W. Lorbeer

451-456 **Quantitative Determination of the Gene Action of Leaf Rust Resistance in Four Cultivars of Wheat, *Triticum aestivum*** ..... M. E. Bjarko and R. F. Line

MOLECULAR PLANT PATHOLOGY

426-432 **Genetics of Antibiosis in Bacterial Strains Suppressive to Take-All** ..... A. R. Poplawsky, Y. F. Peng, and A. H. Ellingboe

PHYSIOLOGY AND BIOCHEMISTRY

414-418 **Regenerating Protoplasts from *Cercospora* and *Neurospora* Differ in Their Response to Cercosporin** ..... K. D. Gwinn and M. E. Daub

473-477 **Quantification of Lignin Formation in Almond Bark in Response to Wounding and Infection by *Phytophthora* Species** ..... M. A. Doster and R. M. Bostock

478-483 **Effects of Low Temperature on Resistance of Almond Trees to Phytophthora Pruning Wound Cankers in Relation to Lignin and Suberin Formation in Wounded Bark Tissue** ..... M. A. Doster and R. M. Bostock

488-492 **Identification of a Metabolite Produced by *Talaromyces flavus* as Glucose Oxidase and its Role in the Biocontrol of *Verticillium dahliae*** ..... K. K. Kim, D. R. Fravel, and G. C. Papavizas

RESISTANCE

457-461 **Heritability and Number of Genes Controlling Leaf Rust Resistance in Four Cultivars of Wheat** ..... M. E. Bjarko and R. F. Line

462-468 **Quantitative Variability of *Clavibacter xyli* subsp. *xyli* Populations in Sugarcane Cultivars Differing in Resistance to Ratoon Stunting Disease** ..... M. J. Davis, J. L. Dean, and N. A. Harrison

484-487 **Resistance Responses in Half-Sib Loblolly Pine Progenies after Inoculation with *Cronartium quercuum* f. sp. *fusiforme*** ..... E. G. Kuhlman and H. R. Powers, Jr.

TECHNIQUES

418-420 **An Improved Method for Detection of *Acremonium coenophialum* in Tall Fescue Plants** ..... B. B. Reddick and M. H. Collins

VECTOR RELATIONS

499-504 **Evidence for Infectivity of Maize Chlorotic Dwarf Virus and for a Helper Component in Its Leafhopper Transmission** ..... R. E. Hunt, L. R. Nault, and R. E. Gingery

504 **Erratum**

No. 5—May

OBITUARIES

505 **Harold W. Bockstahler, 1906–1987** ..... A. L. Anderson

506 **Arthur Brotherton Burrell, 1902–1987** ..... L. J. Tyler

507 **William Q. Loegering, 1912–1987** ..... D. F. Millikan and S. G. Pueppke

CYTOLOGY AND HISTOLOGY

589-594 **Barley Stripe Mosaic Virus but Not Brome Mosaic Virus Binds to Wheat Streak Mosaic Virus Cylindrical Inclusions In Vivo** ..... W. G. Langenberg

DISEASE CONTROL AND PEST MANAGEMENT

555-559 **Distribution and Temporal Dynamics of Metalaxyl in Potato Foliage** ..... M. G. Milgroom, C. E. McCulloch, and W. E. Fry

601-603 **Reduction of Infection by *Pseudomonas syringae* pv. *tomato* Using a Nonpathogenic, Copper-Resistant Strain Combined with a Copper Bactericide** ..... D. A. Cooksey

613-618 **Efficacy of New Benzimidazole Fungicides Against Sensitive and Benomyl-Resistant *Botrytis cinerea*** ..... M. Chiba and J. Northover

DISEASE DETECTION AND LOSSES

604-607 **Spatial Pattern and Sequential Sampling Plan for *Meloidogyne hapla* in Muck-Grown Carrots** ..... G. Bélair and G. Boivin

ETIOLOGY

508-512 **Isolation of Tomato Yellow Leaf Curl Virus, a Geminivirus** ..... H. Czosnek, R. Ber, Y. Antignus, S. Cohen, N. Navot, and D. Zamir

550-554 **Pathological and Physiological Identification of Race C of *Bipolaris maydis* in China** ..... J-K Wei, K-M Liu, J-P Chen, P-C Luo, and O. Y. Lee-Stadelmann

570-574 **Chlorophyll, Chloroplast Ribosomal RNA, and DNA Are Reduced by Barley Stripe Mosaic Virus Systemic Infection** ..... M. K. Brakke, J. L. White, R. G. Samson, and J. Joshi

ECOLOGY AND EPIDEMIOLOGY

512-519 **Powdery Mildew of Tomato: The Effect of Planting Date and Triadimefon on Disease Onset, Progress, Incidence, and Severity** ..... J. C. Correll, T. R. Gordon, and V. J. Elliott

520-525 **Improved Seedling Performance by Integration of Biological Control Agents at Favorable pH Levels with Solid Matrix Priming** ..... G. E. Harman and A. G. Taylor

534-542 **Effect of Inocula Delivery Systems on Rhizobacterial Colonization of Underground Organs of Potato** ..... J. B. Bahme, M. N. Schroth, S. D. Van Gundy, A. R. Weinhold, and D. M. Tolentino

543-550 **Predicting Stripe Rust Severity on Winter Wheat Using an Improved Method for Analyzing Meteorological and Rust Data** ..... S. M. Coakley, R. F. Line, and L. R. McDaniel

559-565 **A Model for the Effects of Metalaxyl on Potato Late Blight Epidemics** ..... M. G. Milgroom and W. E. Fry

565-570 **A Simulation Analysis of the Epidemiological Principles for Fungicide Resistance Management in Pathogen Populations** ..... M. G. Milgroom and W. E. Fry

579-585 **Characterization of *Puccinia polysora* Epidemics in Pennsylvania and Maryland** .... R. N. Raid, S. P. Pennypacker, and R. E. Stevenson

586-589 **Occurrence of *Fusarium* Species in Scabby Wheat from Minnesota and their Pathogenicity to Wheat** ..... R. D. Wilcoxson, T. Kommedahl, E. A. Ozmon, and C. E. Windels

595-600 **Effects of Host Density and Number of Disease Foci on Epidemics of Southern Blight of Processing Carrot** ..... V. L. Smith, C. L. Campbell, S. F. Jenkins, and D. M. Benson

619-624 **Involvement of pH in the Competition between *Cytospora cincta* and *Pseudomonas syringae* pv. *syringae*** ..... E. Endert-Kirkpatrick and D. F. Ritchie

MOLECULAR PLANT PATHOLOGY

575-578 **Synthesis of Disease-Associated Proteins in Viroid-Infected Tomato Leaves and Binding of Viroid to Host Proteins** ..... A. Hadidi

RESISTANCE

607-612 **Quantitatively Assessed Resistance to Bacterial Leaf Spot in Pepper That is Simply Inherited** ..... A. M. Hibberd, R. E. Stall, and M. J. Bassett

SPECIAL TOPICS

526-533 **An International System of Nomenclature for *Puccinia graminis* f. sp. *tritici*** ..... A. P. Roelfs and J. W. Martens

ABSTRACTS

625-630 **Abstracts of papers presented at the 1988 Annual Meeting of the Southern Division**

No. 6—June

LETTER TO THE EDITOR

631-632 **Naming of Peanut Stripe Virus** ..... J. W. Demski, D. V. R. Reddy, S. Wongkaew, M. Kameya-Iwaki, N. Saleh, and Z. Xu

OBITUARIES

633 **Harold Homer Foster, 1902–1987** ..... W. M. Epps

634 **Henryk Jedlinkski, 1924–1987** ..... R. E. Ford

635 **Paul Allen Young, 1898–1979** ..... G. M. Watkins

CYTOLOGY AND HISTOLOGY

728-732 **The Ultrastructure and Nuclear DNA Content of *Tilletia indica*** ..... C. D. Therrien, M. H. Royer, and J. A. Strauss

DISEASE CONTROL AND PEST MANAGEMENT

640-644 **Modification of the Peanut Leaf Spot Advisory for Use on Genotypes with Partial Resistance** ..... C. A. Matyac and J. E. Bailey

656-659 **Effect of *Trichoderma harzianum* on Sporulation of *Cochliobolus sativus* on Excised Wheat Seedling Leaves** ..... C. L. Biles and J. P. Hill

746-750 **Multiple Antibiotic Production by *Erwinia herbicola*** ..... C. A. Ishimaru, E. J. Klos, and R. R. Brubaker

836-840 **Effects of Organic Matter Decomposition Level and Cellulose Amendment on the Inoculum Potential of *Rhizoctonia solani* in Hardwood Bark Media** ..... Y. R. Chung, H. A. J. Hoitink, W. A. Dick, and L. J. Herr

ETIOLOGY

663-667 **Detection of the Mild Strains of Potato Spindle Tuber Viroid from Single True Potato Seed by Return Electrophoresis** ..... R. P. Singh, A. Boucher, and J. E. A. Seabrook

687-694 **Anatomy of Citrus Fatal Yellows: Evidence for Strains of the Causal Agent and for Double Infections with a Sunken-Vein Disease Agent** ..... H. Schneider

817-820 **Pathogenicity on Walnut and Serological Comparisons of Cherry Leafroll Virus Strains** ..... A. Rowhani and S. M. Mircetich

ECOLOGY AND EPIDEMIOLOGY

636-640 **Synergistic Interactions of Cymoxanil Mixtures in the Control of Metalaxyl-Resistant *Phytophthora infestans* of Potato** ..... Y. Samoucha and Y. Cohen

645-650 **Response Models for Conidiospore Germination and Germ Tube Elongation of *Mycosphaerella fragariae* as Influenced by Temperature and Moisture** ..... V. J. Elliott

672-676 **Effect of Environmental Factors on *Sclerotinia minor* and Sclerotinia Blight of Peanut** .... R. L. Dow, D. M. Porter, and N. L. Powell

682-686 **Pathogenicity, Fungicide Resistance, and Ethylene Production of *Penicillium* spp. Isolated from Tulip Bulbs** ..... T. A. Prince, C. T. Stephens, and R. C. Herner

708-716 **Seasonal Colonization of Roots of Field-Grown Cotton by *Verticillium dahliae* and *V. tricorpus*** .... O. C. Huisman

716-722 **Colonization of Field-Grown Cotton Roots by Pathogenic and Saprophytic Soilborne Fungi** ..... O. C. Huisman

739-745 **Asiatic Citrus Canker: Spatial and Temporal Spread in Simulated New Planting Situations in Argentina** ..... T. R. Gottwald, R. G. McGuire, and S. Garran

756-761 **Spread of Corn Anthracnose from Surface Residues in Continuous Corn and Corn-Soybean Rotation Plots** ..... P. E. Lipps

762-766 **Host-Pathogen Relationships of Wheat and *Septoria tritici*** ..... M. Van Ginkel and A. L. Scharen

771-777 **The Interaction of *Fusarium oxysporum* and *Rhizoctonia solani* in Causing Root Rot of Soybeans** ..... L. E. Datnoff and J. B. Sinclair

778-782 **Role of Siderophores in Suppression of *Pythium* Species and Production of Increased-Growth Response of Wheat by Fluorescent Pseudomonads** ..... J. O. Becker and R. J. Cook

794-800 **Development of an Infection Efficiency Model for *Plasmopara viticola* on American Grape Based on Temperature and Duration of Leaf Wetness** ..... N. Lalancette, M. A. Ellis, and L. V. Madden

822-827 **Effect of Weather Variables on Strawberry Leather Rot Epidemics** ..... K. M. Reynolds, L. V. Madden, and M. A. Ellis

831-835 **Sources of Inoculum of *Sphaeropsis sapinea* in Forest Tree Nurseries** ..... M. A. Palmer, R. E. McRoberts, and T. H. Nicholls and G. L. Grantham

846-851 **Effects of Flood Duration on the Development of Phytophthora Root and Crown Rots of Apple** ..... G. T. Browne and S. M. Mircetich

GENETICS

668-672 **Vegetative Compatibility and Self-Incompatibility within *Fusarium oxysporum* f. sp. *melonis*** ..... D. J. Jacobson and T. R. Gordon

695-698 **Inheritance of Increased Sensitivity to *N*-Phenylcarbamates in Benzimidazole-Resistant *Venturia nashicola*** ..... H. Ishii and M. van Raak

698-702 **Genetic Relatedness Among Anastomosis Groups in *Rhizoctonia* as Measured by DNA/DNA Hybridization** ..... R. Vilgalys

852-855 **Vegetative-Compatibility Grouping of *Fusarium oxysporum* f. sp. *vasinfectum* from Tissue and the Rhizosphere of Cotton Plants** ..... T. Katan and J. Katan

MOLECULAR PLANT PATHOLOGY

426-432 **Genetics of Antibiosis in Bacterial Strains Suppressive to Take-All** ..... A. R. Poplawsky, Y. F. Peng, and A. H. Ellingboe

PHYSIOLOGY AND BIOCHEMISTRY

414-418 **Regenerating Protoplasts from *Cercospora* and *Neurospora* Differ in Their Response to Cercosporin** ..... K. D. Gwinn and M. E. Daub

473-477 **Quantification of Lignin Formation in Almond Bark in Response to Wounding and Infection by *Phytophthora* Species** ..... M. A. Doster and R. M. Bostock

478-483 **Effects of Low Temperature on Resistance of Almond Trees to Phytophthora Pruning Wound Cankers in Relation to Lignin and Suberin Formation in Wounded Bark Tissue** ..... M. A. Doster and R. M. Bostock

488-492 **Identification of a Metabolite Produced by *Talaromyces flavus* as Glucose Oxidase and its Role in the Biocontrol of *Verticillium dahliae*** ..... K. K. Kim, D. R. Fravel, and G. C. Papavizas

RESISTANCE

457-461 **Heritability and Number of Genes Controlling Leaf Rust Resistance in Four Cultivars of Wheat** ..... M. E. Bjarko and R. F. Line

462-468 **Quantitative Variability of *Clavibacter xyli* subsp. *xyli* Populations in Sugarcane Cultivars Differing in Resistance to Ratoon Stunting Disease** ..... M. J. Davis, J. L. Dean, and N. A. Harrison

484-487 **Resistance Responses in Half-Sib Loblolly Pine Progenies after Inoculation with *Cronartium quercuum* f. sp. *fusiforme*** ..... E. G. Kuhlman and H. R. Powers, Jr.

TECHNIQUES

418-420 **An Improved Method for Detection of *Acremonium coenophialum* in Tall Fescue Plants** ..... B. B. Reddick and M. H. Collins

VECTOR RELATIONS

499-504 **Evidence for Infectivity of Maize Chlorotic Dwarf Virus and for a Helper Component in Its Leafhopper Transmission** ..... R. E. Hunt, L. R. Nault, and R. E. Gingery

504 **Erratum**

No. 7—July

LETTER TO THE EDITOR

883-884 **Spatial Heterogeneity in Crop Loss Assessment Models** ..... G. Hughes

OBITUARIES

885 **Charles Joseph Nusbaum, 1906–1987** ..... K. R. Barker and R. Aycock

886 **Joseph Bjorn Skaptason, 1911–1987** ..... L. J. Tyler

887 **Dr. F. A. Wood, 1932–1985** ..... D. W. French, W. Merrill, J. F. Tammen, and C. Niblett

DISEASE CONTROL AND PEST MANAGEMENT

912-915 **Fitness of *Phytophthora infestans* Isolates from Metalaxyl-Sensitive and Resistant Populations** ..... D. Kadish and Y. Cohen

934-939 **Economic Evaluation of Fungicides for Control of Alfalfa Foliar Diseases** ..... S. C. Broscious and H. W. Kirby

974-978 **Correlative in Vitro and in Vivo Behavior of Mutant Strains of *Phytophthora palmivora* Expressing Different Resistances to Phosphorous Acid and Fosetyl-Na** ..... T. E. Dolan and M. D. Coffey

DISEASE DETECTION AND LOSSES

966-970 **Forecasting Spore Episodes of *Botrytis squamosa* in Commercial Onion Fields in New York** ..... P. C. Vincelli and J. W. Lorbeer

ETIOLOGY

986-990 **Host Specificity of *Colletotrichum gloeosporioides* f. sp. *aeschynomene* and *C. truncatum* in the Leguminosae** ..... G. J. Wiedemann, D. O. TeBeest, and R. D. Cartwright

GENETICS

909-911 **Yellow- and White-Endosperm Effects on Stewart's Wilt of Maize** ..... M. S. Kang and M. S. Zuber

961-966 **The Virulence of Interracial Heterokaryons of *Phytophthora megasperma* f. sp. *glycinea*** ..... A. C. Layton and D. N. Kuhn

MYCOTOXICOLOGY

987-980 **Toxigenic *Fusarium scirpi* in Maize Grain from Midnorthern China** ..... C-C Hsia, T. Kommedahl, B-L Tziang, and J-L Wu

ECOLOGY AND EPIDEMIOLOGY

888-893 **Antifungal Substances Produced by *Penicillium frequentans* and Their Relationship to the Biocontrol of *Monilinia laxa*** ..... A. De Cal, E. M.-Sagasta, and P. Melgarejo

919-925 **Focus Expansion in Plant Disease. III: Two Experimental Examples** ..... F. van den Bosh, H. D. Frinking, J. A. J. Metz, and J. C. Zadoks

926-930 **Effect of Radiation, Temperature, and Moisture on Conidial Germination of *Alternaria solani*** ..... R. E. Stevenson and S. P. Pennypacker

931-934 **Field Testing a Computerized Forecasting System for Rice Blast Disease** ..... C-H Kim, D. R. MacKenzie, and M. C. Rush

945-948 **Infection of Grapevines by Soilborne *Agrobacterium tumefaciens* Biovar 3 and Population Dynamics in Host and Nonhost Rhizospheres** ..... A. L. Bishop, B. H. Katz, and T. J. Burr

952-957 **A Relationship Between Ice-Nucleation-Active Bacteria, Freeze Damage, and Genotype in Oats** ..... D. Marshall

971-974 **Identification and Pathogenicity of Some Alaskan Isolates of *Armillaria*** ..... C. G. Shaw III and E. M. Loopstra

1004-1008 **The Effect of Pruning on Incidence and Severity of *Zygophiala jamaicensis* and *Gloeodes pomigena* Infections of Apple Fruit** ..... C. M. Ocamb-Basu, T. B. Sutton, and L. A. Nelson

PHYSIOLOGY AND BIOCHEMISTRY

894-900 **Genetic Variation in Polypeptide Maps of Two *Globodera rostochiensis* Pathotypes** ..... J. Bakker and L. Bouwman-Smits

900-904 **Contrasting Rates of Protein and Morphological Evolution in Cyst Nematode Species** ..... J. Bakker and L. Bouwman-Smits

996-999 **Partial Characterization and Serological Specificity of the Lipopolysaccharide of *Erwinia chrysanthemi*** ..... J. J. Bradshaw-Rouse, L. Sequeira, A. Kelman, and R. S. Dickey

1000-1003 **Inhibition of Plasma Membrane and Tonoplast H^+-Transporting ATPases by Glyceollin** ..... J. L. Giannini, D. P. Briskin, J. S. Holt, and J. D. Paxton

RESISTANCE

905-908 **New Sources of Resistance to *Puccinia hordei* in Barley Land Race Cultivars** ..... A. H. Yahyaoui, E. L. Sharp, and M. Reinhold

957-960 **Rate-Limiting Resistance to Pyrenophora Leaf Blotch in Spring Oats** ..... J. A. Frank and B. J. Christ

TECHNIQUES

915-919 **Estimation of Metalaxyl Resistance in *Phytophthora infestans*** ..... D. Kadish and Y. Cohen

940-944 **Sampling Citrus Orchards in Florida to Estimate Populations of *Phytophthora parasitica*** ..... J. W. Timmer, H. A. Sandler, J. H. Graham, and S. E. Zitko

949-952 **Detection and Quantification of *Phytophthora cactorum* in Naturally Infested Soils** ..... M. K. Rahimian and J. E. Mitchell

981-986 **Whole Plant Wound Inoculation for Consistent Reproduction of Black Rot of Crucifers** ..... J. J. Shaw and C. I. Kado

VECTOR RELATIONS

991-995 **Multiplication of Maize Stripe Virus in *Peregrinus maidis*** ..... L. R. Nault and D. T. Gordon

No. 8—August

LETTER TO THE EDITOR

1009-1014 **Possible Role of Nuclear Structure in Disease Resistance of Plants** ..... L. A. Hadwiger

OBITUARIES

1015 **Fred Harrison Smith, 1926–1987** ..... W. Witcher and L. W. Baxter, Jr.

1016 **Michael Thomas Turner, 1944–1987** ..... R. E. Ford and T. Leland

CYTOLOGY AND HISTOLOGY

1033-1042 **Differential Effects of Sterol Inhibitors on Growth, Cell Membrane Permeability, and Ultrastructure of Two Target Fungi** ..... H. Dahmen, H. C. Hoch, and T. Staub

1104-1108 **Development of *Cladosporium caryigenum* in Pecan Leaves** ..... A. J. Latham and A. E. Rushing

1109-1118 **Presymptom Histopathology of Peach Trees Inoculated with *Botryosphaeria obtusa* and *B. dothidea*** ..... A. R. Biggs and K. O. Britton

DISEASE CONTROL AND PEST MANAGEMENT

1078-1082 **Relationship of Precipitation Probability to Infection Potential of *Botrytis squamosa* on Onion** ..... P. C. Vincelli and J. W. Lorbeer

TECHNIQUES

1022-1026 **Immunoenzymatic Detection of *Phytophthora fragariae* in Infected Strawberry Plants** ..... E. Amouzou-Alladaye, J. Dunez, and M. Clerjeau

1027-1032 **Detection of Viral Antigen by Immunogold Cytochemistry in Ovules, Pollen, and Anthers of Alfalfa Infected with Alfalfa Mosaic Virus** ..... Z. Pesic, C. Hiruki, and M. H. Chen

1047-1051 **Restriction Fragment Length Polymorphisms in Nuclear and Mitochondrial DNA of *Sclerotinia* Species** ..... L. M. Kohn, D. M. Petsche, S. R. Bailey, L. A. Novak, and J. B. Anderson

1101-1103 **An Improved Diffusion Assay for Quantifying the Polygalacturonase Content of *Erwinia* Culture Filtrates** ..... R. J. Taylor and G. A. Secor

ECOLOGY AND EPIDEMIOLOGY

1017-1021 **Vegetative Compatibility and Pathogenicity of *Verticillium albo-atrum*** ..... J. C. Correll, T. R. Gordon and A. H. McCain

1055-1059 **Colonization of Soybean Roots by *Pseudomonas* and *Serratia* Species: Relationship to Bacterial Motility, Chemotaxis, and Generation Time** ..... F. M. Scher, J. W. Kloepper, C. Singleton, I. Zaleska, and M. Laliberte

1075-1078 **Production of Ammonia by *Enterobacter cloacae* and Its Possible Role in the Biological Control of Pythium Preemergence Damping-off by the Bacterium** ..... C. R. Howell, R. C. Beier, and R. D. Stipanovic

1087-1094 **Influence of Number of Host Genotype Units on the Effectiveness of Host Mixtures for Disease Control: A Modeling Approach** ..... C. C. Mundt and L. S. Brophy

1094-1100 **Relationship Between In Vitro Inhibition of *Gaeumannomyces graminis* var. *tritici* and Suppression of Take-All of Wheat by Fluorescent Pseudomonads** ..... D. M. Weller, W. J. Howie, and R. J. Cook

ETIOLOGY

1066-1069 **Role of the Cuticular Membrane in Ontogenic and Vf-Resistance of Apple Leaves against *Venturia inaequalis*** ..... C. Valsangiacomo and C. Gessler

1118-1124 **Detection and Differentiation of Maize Dwarf Mosaic Virus, Strains A and B, by Use of Different Class Immunoglobulins in a Double-Antibody Sandwich Enzyme-Linked Immunosorbent Assay** ..... F. E. Jones, J. H. Hill, and D. P. Durand

MOLECULAR PLANT PATHOLOGY

1060-1066 **Molecular Cloning of Potato Leaf Roll Virus Complementary DNA** ..... O. P. Smith, K. F. Harris, R. W. Toler, and M. D. Summers

PHYSIOLOGY AND BIOCHEMISTRY

1052-1055 **Inhibition of *Penicillium expansum* Polygalacturonase Activity by Increased Apple Cell Wall Calcium** ..... W. S. Conway, K. C. Gross, C. D. Boyer, and C. E. Sams

1082-1086 **Phytotoxic Substances Produced by Some Isolates of *Cercospora arachidicola* Are Not Cercosporin** ..... S. A. Fore, M. E. Daub, and M. K. Beute

1128-1134 **Characterization of the Peanut Mottle Virus Genome by in Vitro Translation** ..... Z. Xiong, E. Hiebert, and D. E. Purcifull

RESISTANCE

1043-1047 **Resistance in *Cucumis melo* to Watermelon Mosaic Virus 2 Correlated with Reduced Virus Movement Within Leaves** ..... S. M. Gray, J. W. Moyer, and G. G. Kennedy

1070-1074 **Association of Suberin Formation in Uninoculated Wounds with Susceptibility to *Leucostoma cincta* and *L. persoonii* in Various Peach Cultivars** ..... A. R. Biggs and N. W. Miles

1124-1128 **A Cowpea Line Has Distinct Genes for Resistance to Tobacco Ringspot Virus and Cowpea Mosaic Virus** ..... F. Ponz, M. L. Russell, A. Rowhani, and G. Bruening

No. 9—September

OBITUARY

1135 **Tsune Kosuge, 1925–1988** ..... D. G. Gilchrist and R. K. Webster

DISEASE CONTROL AND PEST MANAGEMENT

1234-1237 **In Vitro Activity of Sodium Tetrathiocarbonate on Sporulation and Growth of Six *Phytophthora* Species** ..... M. E. Matheron and J. C. Matejka

1254-1258 **Suppression of Ascocarp Formation in *Pyrenophora tritici-repentis* by *Limonomyces roseipellis*, a Basidiomycete from Reduced-Tillage Wheat Straw** ..... W. F. Pfender

DISEASE DETECTION AND LOSSES

1155-1160 **Relationships Between Common Rust Incidence and Severity on a Susceptible and a Partially Resistant Sweet Corn Hybrid** ..... J. K. Pataky and J. M. Headrick

1198-1205 **Modeling the Influences of Plant Infection Rate and Temperature on Potato Foliage and Yield Losses Caused by *Verticillium dahliae*** ..... K. B. Johnson

ECOLOGY AND EPIDEMIOLOGY

1168-1173 **Effects of Hydrogen Fluoride on Growth, Common Blight Development, and the Accumulation of Fluoride in Field-Grown Red Kidney Beans** ..... K. L. Reynolds and J. A. Laurence

1174-1178 **Study of Field-Grown Cotton Roots Infected with *Verticillium dahliae* Using an Immunoenzymatic Staining Technique** ..... J. S. Gerik and O. C. Huisman

1182-1186 **The Influence of Environmental Factors on Anthracnose of *Xanthium spinosum*** .... C. F. McRae and B. A. Auld

1205-1210 **Saprophytic Growth and Pseudothecia Production by *Pyrenophora tritici-repentis* in Plant Tissue Held at Controlled Water Potentials** ..... W. F. Pfender, C. A. Pacey, and W. Zhang

1210-1215 **Development of Bean Rust Epidemics in a Field Planted with Alternate Rows of a Resistant and a Susceptible Snap Bean Cultivar** ..... D. E. Aylor

1241-1245 **Epidemiology of Sclerotinia Stem Rot of Soybean in Ontario** ..... G. J. Boland and R. Hall

ETIOLOGY

1139-1145 **Corky Root of Lettuce in California Caused by a Gram-Negative Bacterium** ..... A. H. C. van Bruggen, R. G. Grogan, C. P. Bogdanoff, and C. M. Waters

1221-1226 **Citrus Tristeza Virus: Characterization of Coat Proteins** ..... R. F. Lee, L. A. Calvert, J. Nagel, and J. D. Hubbard

RESISTANCE

1551-1555 **The Effects of Virulence of *Erwinia amylovora* on the Evaluation of Fire Blight Resistance in *Malus*** ..... J. L. Norelli, H. S. Aldwinckle, S. V. Beer, and R. C. Lamb

POSTHARVEST PATHOLOGY AND MYCOTOXINS

1498-1503 **Identification of Pectinases Produced in Cotton Bolls Infected with *Aspergillus flavus*** ..... T. E. Cleveland and S. P. McCormick

1560-1563 **Depression of Aflatoxin Production by Flavonoid-Type Compounds from Peanut Shells** ..... A. J. DeLucca II, M. S. Palmgren, and D. J. Daigle

1578-1582 **Prestorage Heat Treatment for Control of Decay of Pear Fruit** ..... R. A. Spotts and P. M. Chen

PHYSIOLOGY AND BIOCHEMISTRY

1515-1520 **Resistance of Fungi to the Photosensitizing Toxin, Cercosporin** ..... M. E. Daub

1556-1560 **Effects of Cations on Germination of Urediniospores of *Uromyces phaseoli*** ..... C. J. Baker, J. R. Tomerlin, N. Mock, L. Davidson, and J. Melhuish

1573-1578 **Alteration of Plasmalemma Sucrose Transport in *Phaseolus vulgaris* by *Pseudomonas syringae* pv. *syringae* and its Association with K^+/H^+ Exchange** ..... M. M. Atkinson and C. J. Baker

DISEASE CONTROL AND PEST MANAGEMENT

1503-1509 **Sources and Management of *Pseudomonas syringae* pv. *phaseolicola* and *Pseudomonas syringae* pv. *syringae* Epiphytes on Dry Beans in Colorado** ..... D. E. Legard and H. F. Schwartz

1548-1551 **Nature of Protection of Bean Seedlings from Rhizoctonia Root Rot by a Binucleate *Rhizoctonia*-like Fungus** ..... J. E. Cardoso and E. Echandi

1564-1568 **Factors Influencing the Uptake of Fenarimol and Flusilazol by Apple Leaves** ..... A. L. O'Leary and A. L. Jones

CYTOLOGY AND HISTOLOGY

1596-1600 **Association of Squash Leaf Curl Virus with Nuclei of Squash Vascular Cells** ..... L. L. Hoefert

SPECIAL TOPICS

1530-1532 **Effects of Herbicide Antidotes on Sorghum Downy Mildew** ..... J. Craig, R. A. Frederiksen, G. N. Odvody, and J. Szerszen

1533-1536 **The Relationship Between Hollow Heart of Pea and Seed Electrolyte Loss, Disease Susceptibility, and Plant Growth** ..... C. M. Rush

ABSTRACTS

1613-1620 **Abstracts of papers presented at the 1987 annual meeting of the Northeastern Division**

No. 10—October

DISEASE CONTROL AND PEST MANAGEMENT

1307-1311 **Detoxification of Fusaric Acid by a Fusaric Acid-Resistant Mutant of *Pseudomonas solanacearum* and its Application to Biological Control of Fusarium Wilt of Tomato** ..... H. Toyoda, H. Hashimoto, R. Utsumi, H. Kobayashi, and S. Ouchi

DISEASE DETECTION AND LOSSES

1376-1380 **Effect of Temperature on the Preharvest Infection of Maize Kernels by *Aspergillus flavus*** ..... G. A. Payne, D. L. Thompson, E. B. Lillehoj, M. S. Zuber, and C. R. Adkins

ECOLOGY AND EPIDEMIOLOGY

1312-1315 **Differential Virulence of *Xanthomonas campestris* pv. *pruni* to Peach, Plum, and Apricot Cultivars** ..... H. J. du Plessis

1316-1321 **A Quantitative Model for Describing the Sporulation of *Plasmopara viticola* on Grape Leaves** ..... N. Lalancette, L. V. Madden, and M. A. Ellis

1352-1356 **Influence of Temperature and Wetness Duration on Infection of Peach and Sweet Cherry Fruits by *Monilinia fructicola*** ..... A. R. Biggs and J. Northover

1357-1361 **Influence of Temperature, pH, Osmotic Potential, and Fungicide Sensitivity on Germination of Conidia and Growth from Sclerotia of *Colletotrichum coccodes* in Vitro** ..... H. R. Dillard

1361-1366 **Modeling of Tobacco Virus Epidemics As Spatio-Temporal Autoregressive Integrated Moving-Average Processes** ..... L. V. Madden, K. M. Reynolds, T. P. Pirone, and B. Raccah

1366-1370 **Population Dynamics and Diversity of *Pseudomonas syringae* on Maple and Pear Trees and Associated Grasses** ..... D. K. Malvick and L. W. Moore

1371-1376 **Spread and Increase of Sugarcane Smut in Louisiana** ..... J. W. Hoy and M. P. Grisham

GENETICS

1276-1279 **Inheritance of Isozymes in the Smut Pathogen *Tilletia indica*** ..... M. R. Bonde, G. L. Peterson, and M. H. Royer

ETIOLOGY

1298-1301 **Partial Characterization of a Virus Associated with Citrus Ringspot** ..... K. S. Derrick, R. H. Brlansky, J. V. da Graca R. F. Lee, L. W. Timmer, and T. K. Nguyen

1343-1348 **A New Serotype of Sweet Clover Necrotic Mosaic Virus** ..... H. R. Pappu, C. Hiruki, and N. Inouye

1381-1386 **Distribution and Partial Characterization of pCS1, a Highly Conserved Plasmid Present in *Clavibacter michiganense* subsp. *sepedonicum*** ..... B. D. Mogen, A. E. Oleson, R. B. Sparks, N. C. Gudmestad, and G. A. Secor

PHYSIOLOGY AND BIOCHEMISTRY

1266-1275 **Purification, Characterization, and Immunological Analysis of Nuclear Inclusions Induced by Bean Yellow Mosaic and Clover Yellow Vein Potyviruses** ..... A.-C. Chang, E. Hiebert, and D. E. Purcifull

1322-1326 **Differences in Attachment of the Biotypes of *Agrobacterium tumefaciens* and *A. rhizogenes* to Carrot Suspension Culture Cells** ..... L. Sykes and A. G. Matthysse

1331-1336 **Concentration and Distribution of Mild and Severe Strains of Potato Spindle Tuber Viroid in Cross-Protected Tomato Plants** ..... J. Khoury, R. P. Singh, A. Boucher, and D. H. Coombs

RESISTANCE

1261-1265 **Ethylene Production by Excised Sapwood of Clonal Eastern Cottonwood and the Compartmentalization and Closure of Seasonal Wounds** ..... L. Shain and J. B. Miller

1292-1297 **Virulence of *Erwinia amylovora* Strains to *Malus* sp. Novole Plants Grown in Vitro and in the Greenhouse** ..... J. L. Norelli, H. S. Aldwinckle, and S. V. Beer

TECHNIQUES

1280-1283 **Use of a ^{32}P-Labeled Transcribed RNA Probe for Dot Hybridization Detection of Plum Pox Virus** ..... C. Varveri, T. Candresse, M. Cugusi, M. Ravelonandro, and J. Dunez

1284-1286 **Reproduction of *Pasteuria penetrans* in a Tissue-Culture System Containing *Meloidogyne javanica* and *Agrobacterium rhizogenes*-Transformed Roots** ..... S. Verdejo and B. A. Jaffee

1287-1292 **Quantitative Estimation of *Rhizoctonia solani* AG-3 in Soil** ..... C. Castro, J. R. Davis, and M. V. Wiese

1302-1307 **Anti-Idiotypic Antibodies Against an Anti-Barley Yellow Dwarf Virus Monoclonal Antibody** ..... J. S. Hu and W. F. Rochow

1337-1340 **Factors Affecting Selection of Epitope Specificity of Monoclonal Antibodies to Tulip Breaking Potyvirus** ..... H. T. Hsu, J. M. Franssen, C. T. C. van der Hulst, A. F. L. M. Derks, and R. H. Lawson

VECTOR RELATIONS

1326-1330 **Phenotypic Mixing: Mechanisms of Dependent Transmission for Two Related Isolates of Barley Yellow Dwarf Virus** ..... J. S. Hu, W. F. Rochow, P. Palukaitis, and R. R. Dietert

1340-1343 **Differences in Vectoring Ability and Aggressiveness of Isolates of *Polymyxa betae*** ... J. S. Gerik and J. E. Duffus

1348-1352 **Detection of Tomato Spotted Wilt Virus in Individual Thrips by Enzyme-Linked Immunosorbent Assay** ..... J. J. Cho, R. F. L. Mau, R. T. Hamasaki, and D. Gonsalves

No. 11—November

OBITUARIES

1387 **Vincent W. Cochrane, 1916—1987** ..... C. W. Boothroyd and L. J. Tyler

1388 **Everett Stanley Luttrell, 1916—1988** ..... R. T. Hanlin and W. N. Garrett

CYTOLOGY AND HISTOLOGY

1434-1441 **Histology of Infection of Wheat by *Tilletia indica*, the Karnal Bunt Pathogen** ..... B. J. Goates

1454-1462 **Effect of Fungal Death or Inhibition Induced by Oxycarboxin or Polyoxin D on the Interaction between Resistant or Susceptible Bean Cultivars and the Bean Rust Fungus** ..... M. C. Heath

DISEASE CONTROL AND PEST MANAGEMENT

1409-1412 **Insensitivity of Thick-Walled Oospores of *Pythium ultimum* to Fungicides, Methyl Bromide, and Heat** ..... T. E. Stasz and S. P. Martin

DISEASE DETECTION AND LOSSES

1491-1494 **A Comparison of Isozymes of *Phakopsora pachyrhizi* from the Eastern Hemisphere and the New World** ..... M. R. Bonde, G. L. Peterson, and W. M. Dowler

ECOLOGY AND EPIDEMIOLOGY

1389-1395 **Spatial Pattern of Downy Mildew in Hop Yards** ..... D. A. Johnson, J. R. Alldredge, and R. Fisher

1402-1408 **Separation by Protein Electrophoresis of Six Species of *Phytophthora* Associated with Deciduous Fruit Crops** ..... A. Bielenin, S. N. Jeffers, W. F. Wilcox, and A. L. Jones

1413-1421 **Initiation, Development, Dispersal, and Survival of Cleistothecia of *Uncinula necator* in New York Vineyards** ..... D. M. Gadoury and R. C. Pearson

1447-1450 **Microbial Activity and Biomass in Container Media for Predicting Suppressiveness to Damping-Off Caused by *Pythium ultimum*** ..... W. Chen, H. A. J. Hoitink, and L. V. Madden

1478-1483 **Relationships Between the Development of Root Systems of Tobacco and Infection by *Phytophthora parasitica* var. *nicotianae*** ..... J. T. English and D. J. Mitchell

1484-1490 **Influence of an Introduced Composite of Microorganisms on Infection of Tobacco by *Phytophthora parasitica* var. *nicotianae*** ..... J. T. English and D. J. Mitchell

1495-1497 **Effect of Salinity Stress on Development of Pythium Blight in *Agrostis palustris*** ..... S. L. Rasmussen and M. E. Stanghellini

GENETICS

1396-1402 **Isozyme Analysis and Aminopeptidase Activities Within the Genus *Peronosclerospora*** ..... J. A. Micales, M. R. Bonde, and G. L. Peterson

MOLECULAR PLANT PATHOLOGY

1473-1477 **Analysis of Sowthistle Yellow Vein Virus-Specific RNAs in Infected Hosts** ..... D. C. Stenger, J. Richardson, E. S. Sylvester, A. O. Jackson, and T. J. Morris

PHYSIOLOGY AND BIOCHEMISTRY

1421-1424 **Transport of an Apoplastic Fluorescent Dye to Feeding Sites Induced in Tomato Roots by *Meloidogyne incognita*** ..... R. Dorhout, C. Kollöffel, and F. J. Gommers

1451-1453 **Host Responses in Peas to Challenge by Wall Components of *Pseudomonas syringae* pv. *pisi* Races 1, 2, and 3** ..... C. H. Daniels, Y. S. Cody, and L. A. Hadwiger

POSTHARVEST PATHOLOGY AND MYCOTOXINS

1442-1446 **Sources of Inoculum and Infection Courts of *Diplodia gossypina* on Sweet Potato** ..... J.-Y. Lo and C. A. Clark

TECHNIQUES

1425-1429 **Construction and Use of Cloned cDNA Biotin and ^{32}P-Labeled Probes for the Detection of Papaya Mosaic Potexvirus RNA in Plants** ..... B. P. Roy, M. G. AbouHaidar, T. L. Sit, and A. Alexander

1430-1434 **Use of Monoclonal Antibodies Specific for Pectate Lyase as Serological Probes in the Identification of Soft Rot *Erwinia* spp.** ..... M. J. Klopmeyer and A. Kelman

1463-1465 **A Vacuum-Operated Settling Tower for Inoculation of Powdery Mildew Fungi** ..... F. J. B. Reifschneider and L. S. Boiteux

1466-1469 **Effects of Rhizobacteria on Root-Knot Nematodes and Gall Formation** ..... J. O. Becker, E. Zavaleta-Mejia, S. F. Colbert, M. N. Schroth, A. R. Weinhold, J. G. Hancock, and S. D. Van Gundy

1470-1472 **An in Vitro Technique for Large-Scale Production of Sclerotia of *Sclerotinia sclerotiorum*** ..... B. Nelson, D. Duval, and H.-l. Wu

1498-1500 **Detection of Coronatine Toxin of *Pseudomonas syringae* pv. *glycinea* with an Enzyme-Linked Immunosorbent Assay** ..... J. V. Leary, S. Roberts, and J. W. Willis

ABSTRACTS

1501-1505 **Abstracts of papers presented at the 1988 Annual Meeting of the North Central Division**

1506-1512 **Abstracts of papers presented at the 1988 Annual Meeting of the Northeastern Division**

1512 **Errata**

No. 12—December

PART 1

1513-1618 **Abstracts of Presentations at the 1988 Annual Meeting of The American Phytopathological Society and of the Pacific Division**

1619-1623 **Index to Authors of APS Presentations**

PART 2

CYTOLOGY AND HISTOLOGY

1627-1630 **Nuclear Behavior and Division in Germinating Conidia of *Botrytis cinerea*** ..... N. Shirane, M. Masuko, and Y. Hayashi

ECOLOGY AND EPIDEMIOLOGY

1648-1655 **Interactions Between and Among Grain Sorghum, Sorghum Downy Mildew, and the Seed Herbicide Antidotes Concep II, Concep, and Screen** ..... J. B. Szerszen, R. A. Frederiksen, J. Craig, and G. N. Odvody

1656-1661 **Weakening Effect on Propagules of *Fusarium* by Sublethal Heating** ..... S. Freeman and J. Katan

1662-1667 **Infection, Colonization of *Gossypium hirsutum* and *G. barbadense*, and Development of Black Root Rot Caused by *Thielaviopsis basicola*** ..... P. A. Mauk and R. B. Hine

1668-1672 **Irrigation Water as a Source of Inoculum of Soft Rot Erwinias for Aerial Stem Rot of Potatoes** ..... M. R. Cappaert, M. L. Powelson, G. D. Franc, and M. D. Harrison

1701-1706 **Influence of Frequency and Duration of Furrow Irrigation on the Development of Phytophthora Root Rot and Yield in Processing Tomatoes** ..... J. B. Ristaino, J. M. Duniway, and J. J. Marois

ETIOLOGY

1636-1640 **A Carlavirus Associated with Blueberry Scorch Disease** ..... R. R. Martin and P. R. Bristow

1688-1692 **Role of *Pythium* in Sugarcane Stubble Decline: Pathogenicity and Virulence of *Pythium* Species** ..... J. W. Hoy and R. W. Schneider

1692-1696 **Role of *Pythium* in Sugarcane Stubble Decline: Effects on Plant Growth in Field Soil** ..... J. W. Hoy and R. W. Schneider

PHYSIOLOGY AND BIOCHEMISTRY

1641-1648 **Effects of the Host-Selective Toxins of *Alternaria alternata* f. sp. *lycopersici* on Suspension-Cultured Tomato Cells** ..... G. B. Fuson and D. Pratt

POSTHARVEST PATHOLOGY AND MYCOTOXINS

1673-1677 **Inhibition of ^{3}H-Leucine Incorporation by Trichothecene Mycotoxins in Maize and Wheat Tissue** ..... W. L. Casale and L. P. Hart

1697-1700 **Biological Control of Blue Mold and Gray Mold on Apple and Pear with *Pseudomonas cepacia*** ..... W. J. Janisiewicz and J. Roitman

RESISTANCE

1678-1682 **Accumulation of Scoparone, a Phytoalexin Associated with Resistance of Citrus to *Phytophthora citrophthora*** ..... U. Afek and A. Sztejnberg

TECHNIQUES

1631-1636 **Methods for the Enrichment of Desired B-Cell Populations Before Anti-Cauliflower Mosaic Virus Hybridoma Formation** ..... R. A. George and R. H. Converse

VECTOR RELATIONS

1683-1687 **Phylogenetic Relatedness of Maize Chlorotic Dwarf Virus Leafhopper Vectors** ..... L. R. Nault and L. V. Madden

i **Tables of Contents for 1988**

I **Index for 1988**

Statement of Ownership, Management, and Circulation